What is claimed:

1. A cellular phone, comprising:

a first main body having a motor with a shaft, an elastic member elastically supporting the motor, and a switch activating the motor;

a power transmitting unit coupled to the shaft of the motor to receive a rotation power from the motor;

a pinion coupled to the power transmitting unit to be rotated by the rotation power;

a second main body slidably coupled to the first main body, having a rack coupled to the pinion, and sliding with respect to the first main body according to movements of the pinion and the rack; and

a sliding detecting unit detecting a termination of a sliding operation of the second main body to control the motor.

2. The cellular phone of claim 1, wherein the elastic member has an elastic force which is greater than the rotation power and less than an external force exerted on the second main body to slide with respect to the first main body, and which is extended to elastically support the motor in an automatic sliding operation of the second main body and is compressed to prevent a rotation of the motor in a manual sliding operation of the second main body.

3. The cellular phone of claim 1, wherein the power transmitting unit comprises:

a pair of members facing each other to be selectively coupled to each other.

4. The cellular phone of claim 3, wherein the pair of members comprises:

a male cam having one end coupled to the shaft of the motor and the other end formed with a projection having tapered surface formed on both sides thereof; and

a female cam having one end formed with a groove corresponding to the projection of the male cam to be bound to the male cam, and the other end coupled to the pinion to rotate together with the pinion.

5. The cellular phone of claim 4, wherein the groove of the cellular phone comprises a groove having a "-" shape.

6. The cellular phone of claim 4, wherein the groove of the cellular phone comprises a groove having a "+" shape.

7. The cellular phone of claim 1, wherein the sliding detecting unit is provided in one of the first and second main bodies.

8. The cellular phone of claim 7, wherein the sliding detecting unit is provided in the first and second main bodies.

9. The cellular phone of claim 8, wherein the

sliding detecting unit comprises:

a plurality of sensors each having two contacts, activated when the two contacts come in contact with each other, and detecting the termination of the sliding operation of the second main body according to the contact between the two contacts.

10. The cellular phone of claim 9, wherein the sensors are installed on different portions of the first main body and each comprises a switching terminal operating by pressure, and the sliding detecting unit comprises a projection formed on the second main body and pushing the switching terminal to operate when the sliding operation of the second main body is terminated.

11. The cellular phone of claim 8, wherein the sliding detecting unit comprises:

a plurality of noncontact sensors activated by a distance between the noncontact sensors and detecting the termination of the sliding operation of the second main body according to the activated noncontact sensors.

12. The cellular phone of claim 11, wherein the noncontact sensors are installed on the first main body and each comprises a hall element operating by a magnetic field, and the sliding detecting unit comprises a magnet disposed on the second main body to generate the magnetic field and disposed to face one of the noncontact sensors when the sliding operation of the second main body is terminated, to activate the one of the noncontact sensors.

13. A cellular phone, comprising:

a first main body having a speaker;

a second main body having a microphone, and slidably coupled to the first main body;

a sliding unit rotatably disposed in the first main body, and rotating to generate a friction force with the second main body to slide the second main body with respect to the first main body;

a fixed unit disposed on the first main body to rotatably support the sliding unit; and

a position detecting unit detecting a sliding state of the second main body to control a movement of the sliding unit.

14. The cellular phone of claim 13, wherein the sliding unit comprises:

a motor generating a rotation force; and

a friction member disposed on the motor to generate the friction force with the second main body when rotating.

15. The cellular phone of claim 14, wherein the friction member comprises:

a pulley made of a rubber material surrounding the motor to rotate together with the motor.

16. The cellular phone of claim 14, wherein the friction member comprises:

a groove formed on a surface of the friction member to increase

the friction force.

17. The cellular phone of claim 14, wherein the friction member comprises:

a plurality of embossments formed on a surface of the friction member to increase the friction force.

18. The cellular phone of claim 14, wherein the position detecting unit comprises:

a protrusion formed on the motor; and

a position detecting sensor disposed to correspond to the protrusion to detect a rotation state of the protrusion.

19. The cellular phone of clam 18, wherein the position detecting sensor is installed on the first main body to correspond to the protrusion.

20. The cellular phone of clam 18, wherein the position detecting sensor is installed on the fixed unit to correspond to the protrusion.

21. The cellular phone of claim 13, wherein the fixed unit comprises:

a male cam having one end coupled to the sliding unit and the other end having a projection with tapered surfaces;

a female cam having one end formed with a groove to correspond to the projection of the male cam, and having the other end with a cavity; and

an elastic member disposed in the cavity of the female cam

to elastically support the female cam so that the female cam and the male cam are bound to each other in a binding state, maintaining an elastic state to prevent a movement of the male cam when the sliding unit is rotated by a rotation source of the sliding unit, compressed to release the male cam from the binding state when the sliding unit is rotated by an external source other than the rotation source of the sliding unit.

22. The cellular phone of claim 21, wherein the fixed unit comprises:

a bearing having a ring shape and disposed on a side of the sliding unit to rotatably support the sliding unit.

23. The cellular phone of claim 13, wherein the position detecting unit comprises:

magnets disposed on two different positions of the second main body to generate a magnetic field; and

a magnetic field detecting sensor disposed on the first main body to detect a magnetic field generated from one of the magnets.

24. A cellular phone, comprising:

a first main body having a speaker;

a second main body having a microphone, and slidably coupled to the first main body;

a driving unit disposed in the first main body, having a rotation shaft having a power transmitting member formed with a pair of members selectively binding each other and releasing each other at one end of the driving unit, and having an elastic member

disposed at the other end of the driving unit to have an elastic force to elastically support one of the power source and the power transmitting member;

a friction member rotating together with the power transmitting member in a single body to generate a friction force with the second main body to slide the second main body with respect to the first main body;

a fixed unit disposed on the friction member to rotatably support the friction member; and

a position detecting unit detecting a sliding state of the second main body to control the driving unit.

25. The cellular phone of claim 24, wherein the power transmitting member of the driving unit comprises:

a male cam having one end coupled to the rotation shaft and the other end having a projection formed with oblique surfaces; and

a female cam having one end formed with a groove receiving the oblique surfaces of the projection to selectively bind the male cam and the female cam and release the male cam from the female cam.

26. The cellular phone of claim 25, wherein the elastic member has an elastic force to elastically support the driving unit to bind the male cam and the female cam to each other, to maintain an elastic supporting state to prevent a rotation of the male cam when the friction member is rotated by the driving unit, and to be compressed to release the male cam and the female

cam from each other when the friction member is rotated by an external force other than the driving unit.

27. The cellular phone of claim 25, wherein the friction member comprises:

a pulley made of a rubber material, surrounding the female cam of the power transmitting member to rotate together with the power transmitting member.

28. The cellular phone of claim 25, wherein the friction member comprises:

a circular roller made of a rubber material, integrally attached to the female cam to surround the female cam to rotate together with the power transmitting member.

29. The cellular phone of claim 24, wherein the friction member comprises:

a plurality of grooves formed on a surface thereof to increase the friction force.

30. The cellular phone of clam 24, wherein the friction member comprises:

a plurality of embossments formed on a surface thereof to increase the friction force.

31. The cellular phone of claim 24, wherein the position detecting unit comprises:

a protrusion formed on a shaft of the driving unit; and

a position detecting sensor disposed to correspond to the protrusion to detect a rotation state of the protrusion.

32. The cellular phone of claim 31, wherein the position detection sensor is installed on the first main body to correspond to the protrusion.

33. The cellular phone of clam 31, wherein the position detecting sensor is installed on the driving unit to correspond to the protrusion.

34. The cellular phone of claim 24, wherein the fixed unit comprises:

a bearing having a ring shape and inserted around one or both of sides of the friction member to rotatably support the friction member.

35. The cellular phone of claim 24, wherein the position detecting unit comprises:

magnets disposed on different positions of the second main body to generate a magnetic field; and

a magnetic field detecting sensor disposed on the first main body to correspond to the magnets, and detecting the magnetic generated from one of the magnets.

36. A cellular phone, comprising:

a first main body having a motor with a shaft, a pinion coupled to the shaft, and a switch activating the motor;

a second main body having a rack coupled to the pinion to slide with respect to the first main body; and

a motor control unit electrically connected to the motor and the switch of the first main body to control a power to be supplied to the motor through the switch and cutting off the power from the motor when an overload of the motor is generated, so that an sliding operation of the second main body is terminated.

37. The cellular phone of claim 36, wherein the motor control unit comprises:

an overload detector electrically connected to the motor to detect an overload of the motor which is greater than a reference current, and outputting an overload detecting signal; and

a power controller electrically connected to the motor and the switch of the first main body to supply the power to the motor or to cut off the power from the motor according to the overload detecting signal of the overload detector.

38. A cellular phone, comprising:

a first main body having a motor with a shaft, a pinion coupled to the shaft, and a switch activating the motor;

a second main body having a rack coupled to the pinion to slide with respect to the first main body; and

a motor control unit electrically connected to the motor and the switch of the first main body to control a power to be supplied to the motor through the switch for a predetermined period of time according to an activation of the switch so that an sliding operation of the second main body is automatically

terminated.

39. The cellular phone of claim 38, wherein the motor control unit comprises:

a timer electrically connected to the motor to count the predetermined period of time corresponding to a time period taken to complete the sliding operation of the second main body opening and closing the first main body, and outputting a counting signal when the counting of the predetermined period of time is finished; and

a power controller electrically connected to the motor and the switch of the first main body to supply the power to the motor or to cut off the power from the motor according to the counting signal of the timer.

40. A cellular phone, comprising:

a first main body having a motor with a shaft, a pinion coupled to the shaft, and a switch driving the motor;

a second main body having a rack coupled to the pinion to slide with respect to the first main body; and

a motor control unit electrically connected to the motor and the switch of the first main body to control a power to be supplied to the motor through the switch for a predetermined number of rotations according to an activation of the switch so that an sliding operation of the second main body is automatically terminated.

41. The cellular phone of claim 40, wherein the motor control unit comprises:

a counter electrically connected to the motor to count the number of rotations of the motor corresponding to a time period taken to complete the sliding operation of the second main body opening and closing the first main body, and outputting a counting signal when the counting of the predetermined number of rotations of the motor is finished; and

a power controller electrically connected to the motor and the switch of the first main body to supply the power to the motor or to cut off the power from the motor according to the counting signal of the counter.

42. A cellular phone, comprising:

a first main body having a motor with a shaft, a pinion coupled to the shaft, and a switch driving the motor;

a second main body having a rack coupled to the pinion to slide with respect to the first main body; and

a motor control unit electrically connected to the motor and the switch of the first main body to control a power to be supplied to the motor through the switch, driving the motor by supplying the power to the motor according to a reverse electromotive force generated from the motor when the motor is rotated by an external force other than an activation of the switch, and cutting off the power from the motor when an overload is generated from the motor so that an sliding operation of the second main body is automatically terminated.

43. The cellular phone of claim 42, wherein the motor control unit comprises:

a reverse electromotive force detector electrically connected to the motor to detect the reverse electromotive force from the motor, and outputting a reverse electromotive force detecting signal according to the detection of the reverse electromotive force of the motor;

an overload detector electrically connected to the motor to detect an overload of the motor which is greater than a reference current, and outputting an overload detecting signal; and

a power controller electrically connected to the motor and the switch of the first main body to supply the power to the motor according to the reverse electromotive force detecting signal of the reverse electromotive force detector or to cut off the power from the motor according to the overload detecting signal of the overload detector.

44. A method used with a cellular phone having a first main body and a second main body, the method comprising:

outputting a driving signal to a motor to drive the motor by activation of a switch to slide the second main body with respect to the first main body;

detecting an overload from the motor when the sliding of the second main body is prevented; and

cutting off the driving signal from the motor when the overload of the motor is detected, so that the sliding of the second main body is terminated.

45. A method used with a cellular phone having a first main body and a second main body, the method comprising:

outputting a driving signal to a motor to drive the motor by activation of a switch to slide the second main body with respect to the first main body;

outputting an activating signal to a timer to allow the timer to count a period of time according to a start of the sliding of the second main body;

determining whether the counting of the period of time is finished; and

cutting off the driving signal from the motor upon determining that the counting of the period of time is finished, so that the sliding of the second main body is terminated.

46. A method used with a cellular phone having a first main body and a second main body, the method comprising:

outputting a driving signal to a motor to drive the motor by activation of a switch to slide the second main body with respect to the first main body;

outputting an activating signal to a counter to allow the counter to count a number of rotations of the motor according to a start of the sliding of the second main body;

determining whether the counting of the number of the rotations of the motor is finished; and

cutting off the driving signal from the motor upon determining that the counting of the number of rotations of the motor is finished, so that the sliding of the second main body is terminated.

47. A method used with a cellular phone having a

first main body and a second main body, the method comprising:

manually sliding the second main body with respect to the first main body by exerting an external force on the second main body to manually rotate a motor disposed on the first main body;

detecting a reverse electromotive force generated from the motor when the motor is manually rotated by the external force other than an activation of a switch;

outputting a driving signal to a motor to drive the motor upon detection of the reverse electromotive force of the motor to automatically slide the second main body with respect to the first main body;

detecting an overload generating from the motor when the sliding of the second main body is prevented; and

cutting off the driving signal from the motor upon according to the detection of the overload, so that the sliding of the second main body is terminated.

48. A cellular phone comprising:

a first main body;

a second body slidably coupled to the first main body;

a motor control unit having a motor disposed on one of the first and second main bodies to control the second main body to slide with respect to the first main body in a longitudinal direction of the first main body, and automatically terminating a sliding operation of the second main body by detecting one of an overload of the motor, the number of rotations of the motor, a time period of the rotations of the motor time.

49. The cellular phone of claim 48, wherein the motor

control unit automatically activate the motor by detecting a reverse electromotive force generated from the motor.

50. The cellular phone of claim 48, wherein the motor control unit comprises:

a shaft coupled to the motor;

a power transmitting unit coupled to the shaft of the motor to receive a rotation power from the motor;

a pinion coupled to the power transmitting unit to be rotated by the rotation power;

a rack disposed on the second main body sliding with respect to the first main body according to movements of the pinion and the rack; and

a sliding detecting unit detecting the overload of the motor to stop the motor to terminate the sliding operation of the second main body.

51. The cellular phone of claim 44, wherein the motor control unit comprises:

a sliding unit rotatably disposed in the first main body, and rotating to generate a friction force with the second main body to slide the second main body with respect to the first main body;

a fixed unit disposed on the first main body to rotatably support the sliding unit; and

a position detecting unit detecting a sliding state of the second main body to control a movement of the sliding unit.

52. The cellular phone of claim 44, wherein the motor

control unit comprises:

a driving unit disposed in the first main body, having a rotation shaft having a power transmitting member formed with a pair of members selectively binding each other and releasing each other at one end of the driving unit, and having an elastic member disposed at the other end of the driving unit to have an elastic force to elastically support one of the power source and the power transmitting member;

a friction member rotating together with the power transmitting member in a single body to generate a friction force with the second main body to slide the second main body with respect to the first main body;

a fixed unit disposed on the friction member to rotatably support the friction member; and

a position detecting unit detecting a sliding state of the second main body to control the driving unit.

53. A method of a cellular phone, the method comprising:

causing a second body slidably coupled to the first main body;

causing a motor to be disposed on one of the first and second main bodies to control the second main body to slide with respect to the first main body in a longitudinal direction of the first main body; and

automatically terminating a sliding operation of the second main body by detecting one of an overload of the motor, the number of rotations of the motor, a time period of the rotations of the

motor time.a shaft coupled to the motor.

54. The method of claim 53, wherein the motor control unit automatically activate the motor by detecting a reverse electromotive force generated from the motor.